

U.S. DEPARTMENT OF COMMERCE, PATENT AND TRADEMARK OFFICE		DATE: <b>January 28, 2002</b>
<b>TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371</b>		U.S. APPLN. NO. (if known): <b>10/030150</b>
INTERNATIONAL APPLICATION NO.: <b>PCT/FR00/01783</b>	INTERNATIONAL FILING DATE: <b>JUNE 26, 2000</b>	PRIORITY DATE CLAIMED: <b>JULY 9, 1999</b>
TITLE OF INVENTION: <b>DEVICE FOR UNLOCKING A COMPARTMENT OF AN OPENING MECHANISM</b>		
APPLICANT(S) FOR DO/EO/US: <b>Denis Claude Jean MONTAGUTELLI</b>		
Applicant hereby submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
<p>1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</p> <p>2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 USC 371(f)) at any time rather than delay examination until the expiration of the time limit set in 35 USC 371(b) and PCT Articles 22 and 39(1).</p> <p>4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.</p> <p>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)):</p> <p style="margin-left: 20px;">a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> has been transmitted by the International Bureau.</p> <p style="margin-left: 20px;">c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US)</p> <p>6. <input type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).</p> <p>7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))</p> <p style="margin-left: 20px;">a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> have been transmitted by the International Bureau.</p> <p style="margin-left: 20px;">c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</p> <p style="margin-left: 20px;">d. <input checked="" type="checkbox"/> have not been made and will not be made.</p> <p>8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</p> <p>9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</p> <p>10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p> <p><b>ITEMS 11. TO 16. BELOW CONCERN OTHER DOCUMENT(S) OR INFORMATION INCLUDED:</b></p> <p>11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</p> <p>12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.  ASSIGNEE NAME AND ADDRESS: <b>SOCIETE A.P.S. ENGINEERING S.A.R.L., Paris, France</b>  <b>Please publish the assignee data with the application.</b></p> <p>13. <input type="checkbox"/> A <b>FIRST</b> preliminary amendment.  <input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment</p> <p>14. <input type="checkbox"/> A substitute specification.</p> <p>15. <input type="checkbox"/> A change of power of attorney and/or address letter.</p> <p>16. <input checked="" type="checkbox"/> Other items or information: 3 sheets of drawings; international search report and Petition to Revive with a check in the amount of \$640.00.</p>		

531 Rec'd

ATTORNEY'S DOCKET NO: 020093

U.S. APPLICATION NO. (if known) <b>10/030150</b>	INTERNATIONAL APPLICATION NO. <b>PCT/FR00/01783</b>	DATE: <b>January 28, 2002</b>
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17. <input checked="" type="checkbox"/> The following fees are submitted:  <b>Basic National Fee (37 CFR 1.492(a)(1)-(5):</b> Search Report has been prepared by the EPO or JPO: ..... \$890.00  International preliminary examination fee paid to USPTO (37 CFR 1.482) ..... \$710.00  No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) ..... \$740.00  Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$1040.00  International preliminary examination fee (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) ..... \$100.00  <div style="text-align: right;"><b>ENTER APPROPRIATE BASIC FEE AMOUNT = \$ 890.00</b></div>	CALCULATIONS	PTO USE ONLY
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Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <u>  </u> 20 x <u>  </u> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	<b>\$ 130.00</b>	
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CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
TOTAL	5 - 20 =		X \$ 18.00		
INDEPENDENT	1 - 3 =		X \$ 84.00		
Multiple dependent claims(s) (if applicable)			+ \$280.00		
<b>TOTAL OF ABOVE CALCULATIONS =</b>				<b>\$ 1,020.00</b>	
Reduction by 1/2 for filing by small entity, if applicable. (Note 37 CFR 1.9, 1.27, 1.28).				<b>\$ - 510.00</b>	
<b>SUBTOTAL =</b>				<b>\$ 510.00</b>	
Processing fee of <b>\$130.00</b> for furnishing the English translation later than <u>  </u> 20 x <u>  </u> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				<b>\$ 130.00</b>	
<b>TOTAL NATIONAL FEE =</b>				<b>\$ 640.00</b>	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). <b>\$40.00 per property +</b>					
<b>TOTAL FEES ENCLOSED =</b>				<b>\$ 640.00</b>	
				Amount to be:	
				refunded	\$
				charged	\$

ATTORNEY'S DOCKET NO: 020093

531 Rec'd PCT/PT 28 JAN 2002

U.S. APPLICATION NO. (if known) <b>10/030150</b>	INTERNATIONAL APPLICATION NO. <b>PCT/FR00/01783</b>	DATE: <b>January 28, 2002</b>
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a. ☒ A check in the amount of \$640.00 to cover the above fees is enclosed (small entity). (\$445.00 for basic filing fee; \$65.00 for late filing of the declaration and \$130.00 for late filing of the English translation of the specification). (This paper is filed in triplicate)


b. ☐ Please charge my Deposit Account No. 01-2340 in the amount of \$\_\_\_ to cover the above fees. (A duplicate copy of this sheet is enclosed.)

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 01-2340.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed to request that the application be restored to pending status.**

**Send All Correspondence To:**

  
**23850**  
 PATENT TRADEMARK OFFICE

  
 SIGNATURE  
 Nicolas E. Seckel  
 NAME  
 44,373  
 REGISTRATION NUMBER

NES/yap

ARMSTRONG, WESTERMAN & HATTORI, LLP  
 Suite 1000, 1725 K Street, N.W.  
 Washington, D. C. 20006  
 Tel: (202) 659-2930  
 Fax: (202) 887-0357

10/030150

# DEVICE FOR UNLOCKING A COMPARTMENT OF AN OPENING MECHANISM

The present invention involves a device for unlocking a compartment of an opening mechanism, and in particular, of a thermal printing mechanism, the unlocking device being designed to make it easier to load and unload the paper used in a thermal printing device of this type.

The printing mechanisms are generally made up of a printing head affixed to a frame. The thermal printing head consists of a ceramic support that carries the line of heating points and silicon chips or integrated circuits for controlling their supply. The printing head can pivot relative to the frame, most generally along an axis parallel to a longitudinal side of the frame. A roller is united as a single piece with the frame in a manner so that its longitudinal axis is also parallel to it on a longitudinal side of the frame. The printing head is held by a spring supported on the roller. The position of the roller must thus be perfectly controlled in order to obtain a perfect alignment with the thermal printing head. The printing medium usually consists of a roll of paper whose one side is sensitive to heat. This printing roller is driven in rotation by means of a drive cylinder, also called a drive capstan, which itself is activated by a system of pinions and by a small electric motor.

In the case of opening mechanisms for thermal printing devices, the compartment designed to accommodate the roll of paper is closed by a cover that is made of one or more articulated parts, whereby the cover supports the printing roller and makes it possible to bring the printing roller into contact with the chassis.

The locking of the roller onto the printing head is done by a spring united with the chassis that brings the roller into contact with the printing head and between which, the paper to be printed becomes inserted.

The pressure of the printing head on the roller enables the system to be locked in a closed position, either by a condition on the respective positions of the axis of rotation of the cover and the support direction of the printing head, or by a condition on the shape of the spring or on the shape of the chassis.

In order to be reliable, the known locking systems require a large enough pressure of the printing head on the roller in order to ensure a correct alignment between the printing head and the roller, and in order to not be able to open very easily, for example, during a drop or a jolt or when tension is exerted on the paper.

The fact of exerting such pressure in order to ensure closing, this pressure being exerted against a relatively sizeable resistance, does not generally pose a problem to the user, since it is always sufficient to press on the cover to close it. On the other hand, it happens that the force to be exerted in order to open the cover is also relatively sizeable. The action for opening the cover consists in pulling on the cover at the positions provided with grooves for this purpose. The sizeable force to be exerted can thus result in a sudden uncoupling of the cover, which can result in its breaking. On the other hand, these mechanisms are generally of a small size, in a manner such that the user is not very inclined to exert a sizeable pulling force on these mechanisms, which poses an ergonomic problem. Moreover, if the user does not pull on the cover in the direction that is absolutely perpendicular to its axis of rotation, the cover will twist or break, so that the printing device itself can no longer function correctly.

The present invention applies in this context and its purpose is to propose a thermal printing device in which the cover of the compartment intended to receive the paper roll can be maneuvered in the opening direction as in the closing direction in a simple manner and without making sizeable forces necessary, whereby the opening and closing mechanism only has to consist of a reduced number of parts so as not to have a negative influence on the cost of such a printing device and on its reliability.

For this purpose, the present invention has as its object a device for unlocking a compartment of an opening mechanism, in particular, a thermal printing mechanism, consisting of a chassis, the compartment being designed to receive a paper roll, and being closed by a cover.

According to the present invention, a lever is mounted to rotate on the cover and consists of a maneuvering part, whereby the lever consists of stops able to act together with the sides of the chassis in order to cause the rotation of the cover relative to the chassis when the lever is rotated relative to the cover.

According to a characteristic of the present invention, the maneuvering part of the lever is housed in an opening of the cover.

Preferably, the opening is formed on the median part of its main side and receptacles are formed on the portions that extend perpendicularly to the main side of the cover.

According to a characteristic of the invention, the receptacles are formed between the openings designed to act together with pins united with the chassis and allowing the cover to rotate relative to the chassis and with slots designed to receive the ends of the axle of a support and drive roller for paper delivered from the paper roll.

In an advantageous manner, the lever consists of a maneuvering part, having a shape that is approximately complementary to that of the opening of the cover, and it is equipped with extensions carrying at their free ends, rotating axes intended to come to engage in the receptacles formed in the cover, and stops intended to act together with the sides of the chassis.

Other purposes, characteristics, and advantages of the present invention pertain more specifically to the description that follows, of an embodiment example given as an illustration, in reference to the attached drawings in which:

- Figure 1 shows a perspective view of the cover for guarding the compartment intended to accommodate the paper roll, seen from below;
- Figure 2 shows a perspective view of the lever that equips the cover of Figure 1, seen in two-thirds view from behind;
- Figure 3 shows a perspective view of the printing chassis and the lever shown in Figure 2, the cover being omitted for clarity;
- Figure 4 shows a perspective view of the cover for guarding the compartment intended to receive the paper roll, seen from below from an angle other than the one in Figure 1;
- Figure 5 shows a perspective view of a cover for guarding the compartment intended to receive the paper roll, seen from below and equipped with the lever according to the present invention, the lever being positioned in a closed position;

- Figure 6 shows a perspective view of a cover for guarding the compartment intended to receive the paper roll, seen from below and equipped with the lever according to the present invention, the lever in an open position, and
- Figure 7 shows a perspective view of the printing chassis and of the lever shown in Figure 2 at an angle other than Figure 3.

In the Figures, a thermal printing mechanism is shown which consists of a compartment intended to receive a paper roll, whereby this compartment is closed by a cover itself equipped with a locking device intended to make it easier to load and unload the paper used in such a thermal printing device, the opening of the cover being made easier by a lever made according to the present invention. The thermal printing mechanism is quite similar to the one that has been described in the document FR-A-2 760 684 in the name of the applicant, the contents of which are assumed to be integrated by reference in the present description and which is thus not described in greater detail.

Shown in the Figures are the cover of the compartment intended to receive the paper roll, the cover being designated in its entirety by the reference indicator 10. The cover 10 is of the general rectangular configuration and consists of, at the ends of one of its sides, of the openings 12 intended to receive the pins (not shown) that are united with the chassis and allow the swinging or the rotation of the cover 10 on the chassis. The cover 10 consists, on the ends of the side opposite the one that carries the openings 12, of the slots 14 intended to accommodate the ends of the axle of a support and drive roller (not shown) of the paper delivered from the paper roll (not shown).

The cover 10 is equipped on the median part of its main side with an opening 16, having a general rectangular shape, and receptacles 18 formed on the portions 20 that extend perpendicularly to the main side between the openings 12 and the slots 14.

According to the present invention, a lever, shown in greater detail on Figure 2, and designated in its entirety by the reference indicator 22, consists of a main part 24, having a shape that is approximately complementary to that of the opening 16 of the cover 10, and forming a maneuvering part. The lever 22 is equipped on the ends of one of its large sides with extensions 26 which themselves carry, at their free ends, rotating

axes 28 and stops 30. The rotating axes 28 are intended to engage by clamping in the receptacle 18 formed in the cover 10, as shown in Figures 5 and 6.

As has just been seen, the lever 22 is affixed by clamping into the cover 10, the rotating axes 28 of the lever 22 being engaged by force in the receptacles 18 of the cover 10. This cover can then be installed on the chassis of the thermal printing mechanism by the intermediary of the openings 12 arranged around the pins united with the chassis.

The cover can then be closed simply by pressure on it. In fact, the lever is free in the cover and does not present any obstacle to this closing movement.

When the user intends to cause the cover to open, in order to install a new paper roll or replace the one that was present before in the compartment closed by the cover 10, he only needs to grasp the lever 22 by its maneuvering part 24, slightly going past the upper side of the cover 10. To do this, he only needs to intercept the lever using a fingernail or the end of a pointed instrument. The lever 22 then pivots relative to the cover 10 by the rotating axes 28 free to turn in the receptacles 18 of the cover 10.

The first time of the rotational movement of the lever 22 relative to the cover 10, the stops 30 come to be supported on the sides of the chassis. The second time of the rotational movement of the lever 22 relative to the cover 10, the force exerted by the user at the end of the maneuvering part 24 is exerted by the stops 30 on the sides of the chassis, this force being reduced by the ratio between the lever arms existing between, on the one hand, the end of the maneuvering part 24 and the rotating axes 28, and on the other hand, between the rotational axes 28 and the stops 30. As can be seen in the Figures, the ratio between these lever arms can be very sizeable, and in a preferred manner, greater than ten. The opening of the cover 10 can thus be done in particularly ergonomic manner for the user, who does not have to exert a sizeable force in order to obtain this opening.

Thus, according to the present invention, a thermal printing device has been made in which the cover of the compartment intended to receive the paper roll can be maneuvered in the opening direction as in the closing direction in a simple manner and without requiring sizeable forces, the opening and closing mechanism only consisting of a single piece, playing simultaneously the roles of a grasping or maneuvering instrument, a rotating axis of the lever relative to the cover, and a lever stop of the chassis. Such a



lever thus has a particularly reduced cost, just like the cover that it is intended to equip, in a manner so that the cost price and the reliability of the printing mechanism is not altered by it.

Of course, the invention is not limited to the embodiment modes that have been described, but it is able, on the contrary, to accommodate numerous modifications that would occur to the professional without leaving its framework.

## CLAIMS

1. Device for unlocking a compartment of an opening mechanism, in particular, a thermal printing mechanism, consisting of a chassis, the compartment being designed to receive a paper roll, and being closed by a cover (10), characterized in that a lever (22) is mounted to rotate on the cover (10) and consists of a maneuvering part (24), whereby the lever (22) consists of stops (30) able to act together with the sides of the chassis in order to cause the rotation of the cover (10) relative to the chassis when the lever (22) is rotated relative to the cover (10).
2. Device for unlocking according to claim 1, characterized in that the maneuvering part (24) of the lever (22) is accommodated in an opening (16) of the cover (10).
3. Device for unlocking according to claim 2, characterized in that the opening (16) is formed on the median part of its main side, and in that receptacles (18) are formed on the portions (20) that extend perpendicularly to the main side of the cover (10).
4. Device for unlocking according to claim 3, characterized in that the receptacles (18) are formed between the openings (12) designed to act together with the pins united with the chassis and allowing the cover (10) to rotate relative to the chassis and with slots (14) designed to receive the ends of the axle of a support and drive roller for paper delivered from the paper roll.
5. Device for unlocking according to claim 1, characterized in that the lever (22) consists of a maneuvering part (24), having a shape that is approximately complementary to that of the opening (16) of the cover (10), and in that it is equipped with extensions (26) carrying at their free ends, rotating axes (28) intended to come to engage in the receptacles (18) formed in the cover (10), and stops (30) intended to act together with the sides of the chassis.

[3 pages of drawings, Figures 1-7, follow]

(12) DEMANDE INTERNATIONALE PUBLIÉE EN VERTU DU TRAITÉ DE COOPÉRATION  
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Intellectuelle  
Bureau international(43) Date de la publication internationale  
18 janvier 2001 (18.01.2001)

PCT

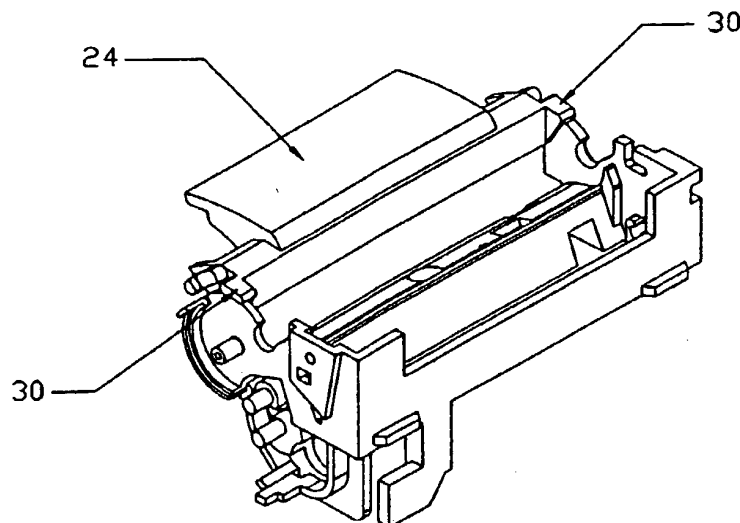
(10) Numéro de publication internationale  
**WO 01/03939 A1**

- (51) Classification internationale des brevets<sup>7</sup>: B41J 29/13 (72) Inventeur; et  
(75) Inventeur/Déposant (pour US seulement): MON-  
(21) Numéro de la demande internationale: TAGUTELLI, Denis, Claude, Jean [FR/FR]; 13, rue  
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99/09312 9 juillet 1999 (09.07.1999) FR JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
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(71) Déposant (pour tous les États désignés sauf US): SOCI- SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US,  
ETE A.P.S. ENGINEERING S.A.R.L. [FR/FR]; 2 bis, UZ, VN, YU, ZA, ZW.  
rue Dupont de l'Eure, F-75020 Paris (FR).

[Suite sur la page suivante]

(54) Title: DEVICE FOR UNLOCKING A COMPARTMENT OF AN OPENING MECHANISM

(54) Titre: DISPOSITIF DE DEVERROUILLAGE D'UN COMPARTIMENT D'UN MECANISME OUVRANT



(57) Abstract: The invention concerns a device for unlocking a compartment of an opening mechanism, comprising a frame, the compartment being designed to receive a paper roll, and being closed with a cover (10). The invention is characterised in that a lever (22) is mounted rotating on the cover (10) and comprises a manoeuvring part (24), the lever (22) comprising stop elements (30) capable of co-operating with the sides of the frame (30) to cause the cover (10) to rotate relative to the frame when the lever (22) is rotated relative to the cover (10). The invention is applicable to opening mechanisms for thermal printing machines.

[Suite sur la page suivante]

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FIGURE 1

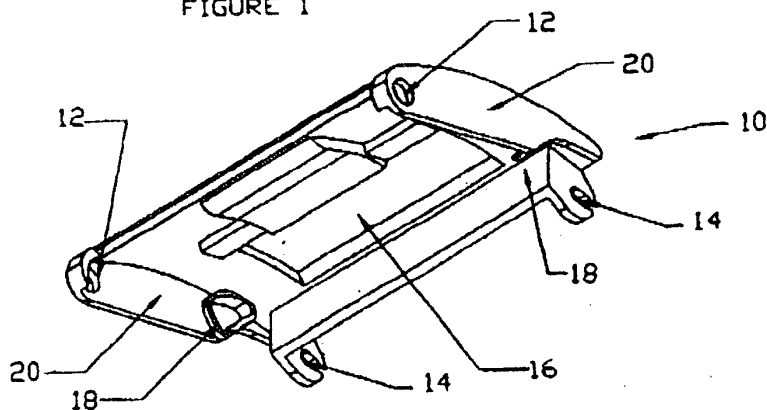


FIGURE 2

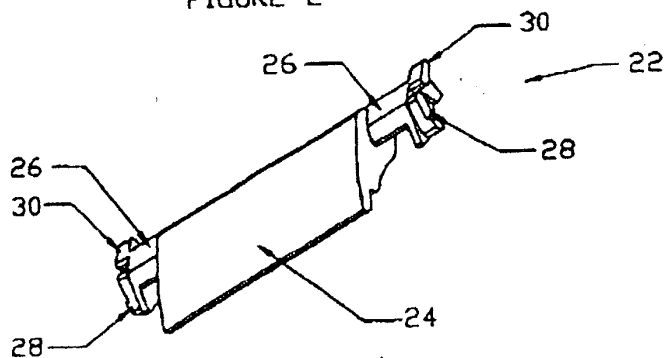
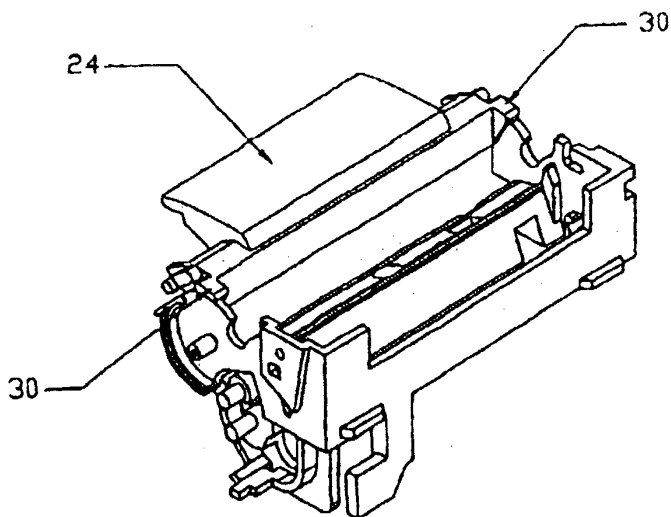


FIGURE 3



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FIGURE 4

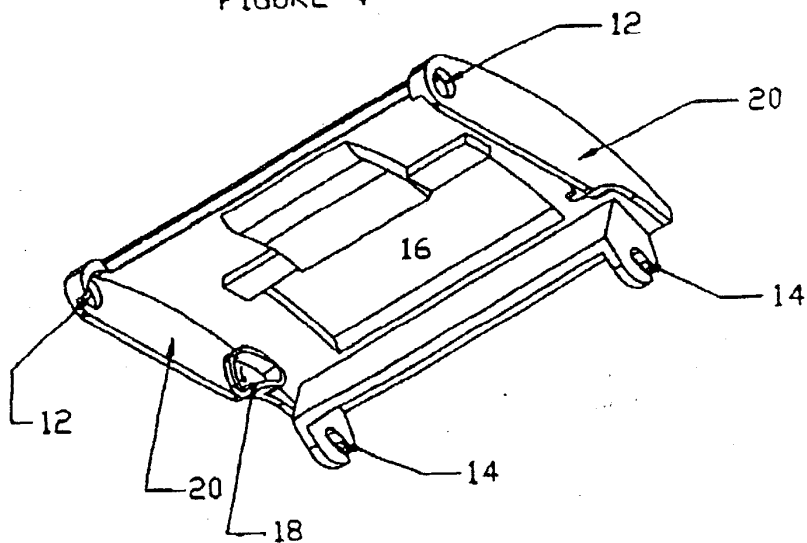
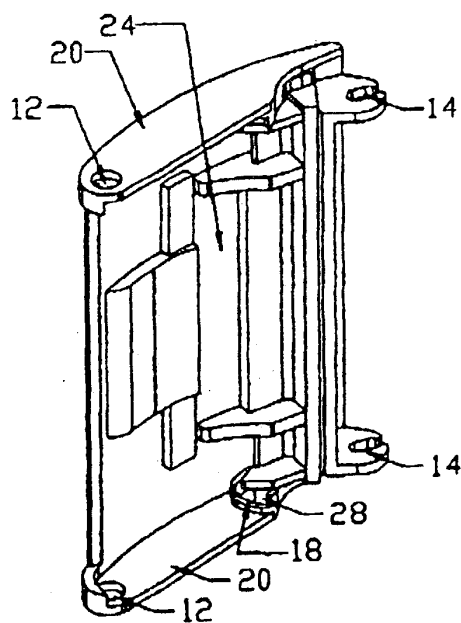


FIGURE 5



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FIGURE 6

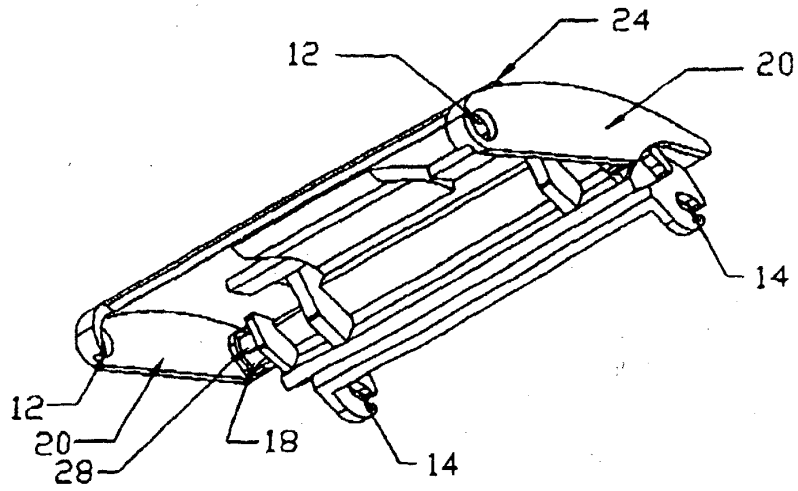
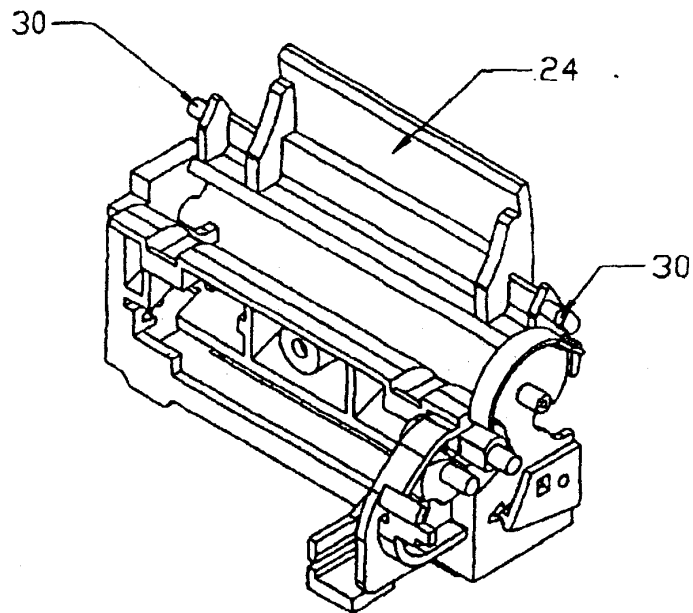


FIGURE 7



Docket No. 020093

10030150-032902  
ARMSTRONG, WESTERMAN & HATTORI, LLP

### Declaration for U.S. Patent Application

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

DEVICE FOR UNLOCKING A COMPARTMENT OF AN OPENING MECHANISM the  
specification of which is attached hereto unless the following is checked

☒ was filed on January 28, 2002 as United States Application Number or PCT International  
Application Number 10/030,150 and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification,  
including the claim(s), as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code  
of Federal Regulations, ' 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, ' 119 (a) - (d) of any foreign  
application(s) for patent or inventor's certificate listed below and have also identified below any foreign  
application for patent or inventor's certificate having a filing date before that of the application for which  
priority is claimed:

				Priority Claimed
(List prior	<u>99/09312</u>	<u>France</u>	<u>09/07/1999</u>	<u>XX</u> Yes ___ No
foreign	(Number)	(Country)	(Day/Month/Year Filed)	
applications.				___ Yes ___ No
See note A	(Number)	(Country)	(Day/Month/Year Filed)	___ Yes ___ No
on back of	(Number)	(Country)	(Day/Month/Year Filed)	___ Yes ___ No
this page)	(Number)	(Country)	(Day/Month/Year Filed)	___ Yes ___ No

(See note B on back of this page)

\_\_\_ See attached list for additional prior foreign applications

I hereby claim the benefit under Title 35, United States Code, ' 120 of any United States application(s) listed  
below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior  
United States application in the manner provided by the first paragraph of Title 35, United States Code, ' 112, I  
acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of  
Federal Regulations, ' 1.56 which became available between the filing date of the prior application and the  
national or PCT international filing date of this application.

(List Prior U.S. Applications)	(Appln. Serial No.)	(Filing Date)	(Status: Patented, Pending, Abandoned)
	(Appln. Serial No.)	(Filing Date)	(Status: Patented, Pending, Abandoned)
	(Appln. Serial No.)	(Filing Date)	(Status: Patented, Pending, Abandoned)

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

**\*23850\***

23850

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18 of the United States Code, § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

(See note C  
above)

Full name of sole or first inventor (given name, family name) Denis MONTAGUTELLI

Inventor's signature 

Date 28 Aug 2002

Residence 3. rue J-Jacques Rousseau

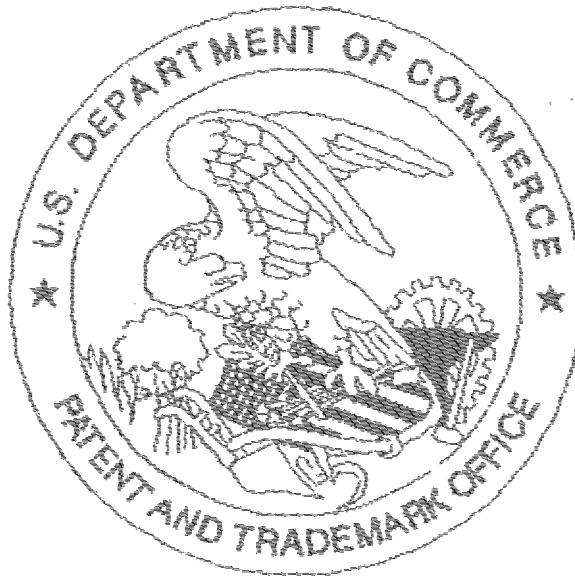
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